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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/678,255	10/03/2000	Masayuki Tanabe	684.3086	4776

5514 7590 11/06/2002

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EXAMINER

SOUW, BERNARD E

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/678,255

Applicant(s)

TANABE, MASAYUKI

Examiner

Bernard E Souw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Preliminary Amendment

2. The amendment filed on 10/03/2000 under 37 CFR 1.312 has been entered.

Claim Objections

3. Claim 11 is objected to because of the following informalities: the word "*mark*" on line 4 is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 are rejected under 35 U.S.C. 102(b) based upon a public use or sale of the invention.

► It is well known as also practiced on a daily basis by a vast majority of the general public to have an optical instrument, comprising:

- an optical element, e.g., a mirror; and
- a detector, e.g., human (operator's) eye for detecting an impurity concentration, i.e., dirt or dust or stain, in an ambience containing a space surrounding the optical element, e.g., on the mirror surface or on the mirror frame.

► Regarding claim 2, it is generally known to the public a means, i.e., human brain, for producing information of impurity concentration on the basis of the output of said detector, i.e., human eye.

► Regarding claim 3, it is generally known to the public a means for informing abnormal concentration on the basis of an output of the human eye as detector, i.e., a high impurity or dirt concentration if the stain is heavy, and medium impurity or dirt concentration if the stain is light.

► Regarding claim 4, it is generally known to the public a controller for controlling the mirror on the basis of an output of the human eye as detector, i.e., a cloth for wiping the mirror clean, especially a damp cloth in case of heavy impurity.

► For more sophisticated circumstances regarding delicate optical elements or instruments, the Applicant is advised to explore the various cleaning materials and methods well known to the general public, as provided by Wang BioMedical Website titled "Remove Dust from Optical Surfaces" dated 02/03/1998, by Edmund Industrial Optics, titled "The Importance of Cleaning Optics", and further by ORIEL Instruments, titled "Optical Cleaning Supplies", and by NASA in "Practice No. PD-ED-1233" (see PTO-892 here attached).

6. Claims 5 and 6 are also rejected under 35 U.S.C. 102(b) based upon a public use or sale of the invention.

The limitation to purge the ambience (of a mirror) with a gas substantially not absorbing light to be propagated through the optical element, in case of a mirror propagated onto and/or from the mirror surface, is well known to a person of ordinary skill in the art, since it is conventionally practiced on a daily basis in all optical laboratories. This Official Notice is supported, e.g., by Wang BioMedical, in which air or nitrogen is used, both known to be transparent to the light to be propagated onto and from the mirror, further by Edmund Industrial Optics, in which dry nitrogen is used, and further still, by ORIEL Instruments, in which a gas jet from a pressurized spray can is used.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 to 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang BioMedical, or Edmund Industrial Optics, or ORIEL Instruments, and further in view of Mori et al. (USPAT 6,268,904 B1).

► Wang BioMedical or Edmund Industrial Optics or ORIEL Instruments shows all the limitations of claims 7 and 9, as applied to claims 1-6 above, except the recitation of

using a UV light that is transparent to the purge gas. Mori et al. discloses a optics cleaning method, in which a UV light of specific wavelength range is used in the optical device that is not absorbed by the purge gas, but absorbed by the contaminants, as recited in Col.1/II.40-63 and Col.2/II.6-12 & 26-31.

It would have been obvious to one of ordinary skill in the art by the time the invention was made to use a UV light of specific wavelengths that is not absorbed by the purge gas, but absorbed by the contaminants, since this would enhance the cleaning effect as known in the art, among others due to a break down of large dust clusters (e.g., organic particles) into smaller particles induced by the specified UV light.

► Regarding claim 10, the use of Excimer laser as a source for the UV light illumination is conventional, as disclosed by Mori et al. in Col.1/II.40-42.

► Regarding claim 8, the use of helium gas for purge-cleaning optical instruments is well known for being conventionally and routinely practiced in a huge number of optical laboratories in the whole world.

It would have been obvious to one of ordinary skill in the art by the time the invention was made to use helium gas instead of nitrogen or dry air, since helium is known as being chemically inert, thus making no chemical reaction with the dirt or contaminants to be removed.

8. Claims 11, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang BioMedical or Edmund Industrial Optics or ORIEL Instruments in view of

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Mori et al., as applied to claims 7-9 above, and further in view of general knowledge in the art.

► Insofar as the Examiner can ascertain beyond the above objection of claim 11, the use of a mask or reticle is rendered obvious by Mori et al., as shown by reticle 20 shown in Fig.1, as recited in Col.6/ll.9-13. The further limitation of an illumination system for illuminating the reticle is rendered obvious by Mori et al. in Col.5/ll.50-67 & Col.6/ll.1-26, whereas the limitation of a means for holding a wafer is disclosed by Mori et al. in Col.6/ll.21-26.

► Regarding claim 12, all the alternative limitations are trivial, since most optical systems is conventionally made of refractive and reflective elements, whereas it is further known to one ordinarily skilled in the art that some optical instruments can be made by refractive elements only, e.g., a magnifying glass, or by reflective elements only, e.g., a mirror as used in claims 1-4 above.

► Claim 16 is rejected because it is not supported by the specification. In other words, the method of exposing a wafer, as well as the method of developing the exposed wafer, are both not a subject matter of Applicant's claimed invention.

9. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang BioMedical or Edmund Industrial Optics or ORIEL Instruments, as applied to claims 1-4 above, and further in view of Peterson et al. (USPAT 5,315,793).

Wang BioMedical or Edmund Industrial Optics or ORIEL Instruments shows all the limitations of claims 13-15, except the recitations of using a sensor for detecting

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concentrations of organic substance(s), and specific limitations regarding their permissible concentrations.

► Regarding claim 13, Peterson et al. discloses an optical cleaning system and method, comprising a provision to remove organic contaminants, as recited in Col.2/ll.47-51.

► Regarding claim 14 and 15, Peterson's use of a residual gas analyzer as recited in Col.3/ll.7-13 enables a quantitative determination of organic substances present in the device's environment, i.e., in terms of $\mu\text{g}/\text{m}^3$, as generally known in the art. The specific concentration limits recited in the claims are well known in the pertinent art, while also depending on the cleanliness requirements as dictated by the purpose of the device and/or process. Being well known in the art, claims 14 and 15 are thus not patentable.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw whose telephone number is 703 305 0149. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 703 308 4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9318 for regular communications and 703 872 9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

bes
October 25, 2002



JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800